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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,978	01/26/2006	Tsutomu Hiroki	284892US26PCT	9448

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ALEXANDRIA, VA 22314

EXAMINER

SNELTING, JONATHAN D

ART UNIT	PAPER NUMBER
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3652

NOTIFICATION DATE	DELIVERY MODE
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03/19/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/565,978	Applicant(s) HIROKI, TSUTOMU	
	Examiner Jonathan Snelting	Art Unit 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-16 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/26/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 9A and 9B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: page 12, line 10 and page 15, line 4 recite "] " character-shaped hook bars 13. It is possible that the "] " is a foreign language character, but it is not an English character and is confusing to the reader. It is suggested that "] " be changed to "U" to avoid confusion with the "guide rails with C-shaped cross section".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugano et al. (JP 01-169103), hereafter referred to as Sugano.

5. Consider claim 1. Sugano teaches bellows (26, 27), guiding tracks (support shafts 22, 23), moving members (shape retention guide 29) slidably installed on the guiding tracks, intermediate supporting members (29a) coupling the moving members and the bellows.

6. Consider claim 2. Sugano teaches an upper guiding track (22) and a lower guiding track (23), which are adjacent to an inner surface of bellows (26, 27). "Upper" and "lower" designations are based on the orientation of the apparatus. When Sugano's apparatus is oriented as shown in fig. 1, support shaft 22 is the upper guiding track and support shaft 23 is the lower guiding track.

7. Consider claim 3. Sugano teaches moving members (29) with moving blocks (29b and guide holes 30) installed on guiding tracks (22, 23) so as not to derail from the guiding tracks.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano (JP 01-169103) in view of Yamanashi (JP 2004-9121).

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10. Consider claim 4. Sugano does not teach a guiding groove portion of the guiding tracks with a C-shaped cross section, but this is a matter of design choice. Yamanashi teaches guiding tracks (21) with a guiding groove portion with a C-shaped cross section (see fig. 4). Yamanashi teaches moving blocks (31) slidably installed on the guiding groove portion. It would have been obvious to a person having ordinary skill in the art to modify Sugano's guiding tracks with Yamanashi's C-shaped cross section in order to remove and replace one of the moving blocks in the center without removing one of the moving blocks on the end.

11. Consider claim 5. Sugano does not teach rollers axially supported on moving blocks. Yamanashi teaches rollers (51) axially supported on moving blocks (47) so as to slide on the guiding tracks (41, see fig. 1). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving blocks with Yamanashi's rollers in order to reduce friction.

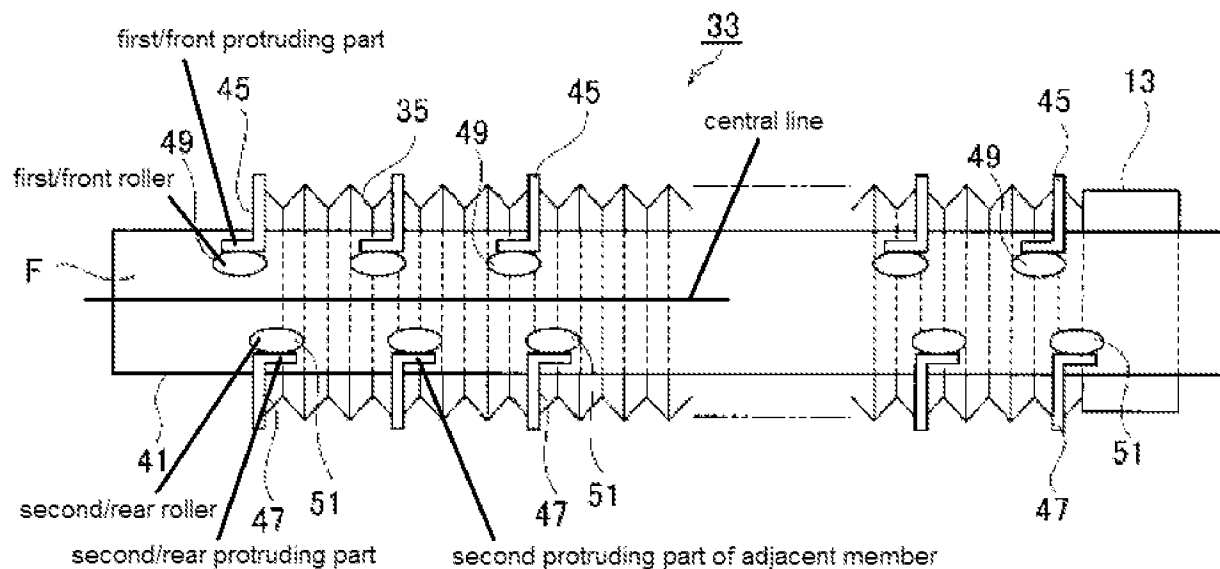
12. Consider claim 6. Sugano teaches plural moving members (29) that are slidable with respect to each other and have protruding parts (29b) capable of contacting with each other to set a minimum distance between the plural moving members. Sugano does not teach rollers. Yamanashi teaches rollers (51). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving blocks with Yamanashi's rollers in such a way as to prevent the rollers from contacting each other in order to prevent excessive wear on the rollers.

13. Consider claim 7. Sugano teaches protruding parts (29a), but does not teach rollers. Yamanashi teaches rollers (49, 51) mounted on protruding parts (45, 47). It

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would have been obvious to a person having ordinary skill in the art to modify Sugano's protruding parts with Yamanashi's rollers in order to reduce friction.

14. Consider claim 8. Sugano teaches protruding parts (29a) positioned at a front and a rear portion of the moving blocks, but does not teach alternately positioned protruding parts and alternately positioned front and rear rollers. Yamanashi teaches a first/front roller (49) and a second/rear roller (51) alternately positioned with respect to a central line of the moving blocks (45 and 47, see fig. 3). Yamanashi teaches first/front protruding part (45) and second/rear protruding part (47) alternately positioned with respect to the central line. Yamanashi's first protruding part of one moving member is positioned on an opposite side of the central line with respect to the second protruding part of an adjacent moving member (see fig. 3 below). It would have been obvious to a person having ordinary skill in the art to modify Sugano's protruding parts with Yamanashi's rollers and protruding parts in order to reduce friction.

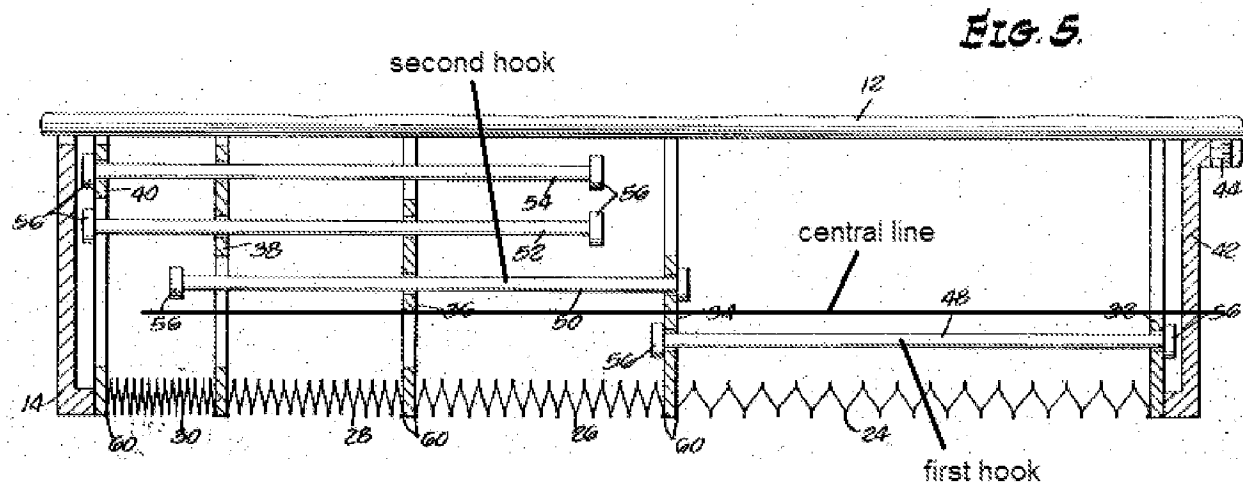


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15. Claim 9 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano (JP 01-169103) in view of Wentworth, Jr. (Patent No. 3,731,595), hereafter referred to as Wentworth.

16. Consider claim 9. Sugano teaches plural moving members (29) slidable with respect to each other, but does not teach coupling members. Wentworth teaches coupling members (48, 50, 52, 54) coupled with moving blocks (32, 34, 36, 38, 40) to determine a maximum distance between the plural moving members (32, 34, 36, 38, 40; see figs. 4-5). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving members with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.

17. Consider claim 11. Sugano does not teach coupling members and hooks. Wentworth teaches first (32), second (34), and third (36) moving members, a first hook (48, 56) for determining a maximum distance between the first (32) and second (34) moving members and a second hook (50, 56) for determining a maximum distance between the second (34) and third (36) moving members (see fig. 5). Wentworth's first and second hooks are alternately arranged with respect to a central line of the moving blocks in the axial direction (see fig. 5 below). It would have been obvious to a person having ordinary skill in the art to modify Sugano's moving members with Wentworth's coupling members in order to set a maximum distance between the moving members to prevent the bellows from bearing an excessive tensile load in the axial direction.



18. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugano (JP 01-169103) in view of Wentworth (Patent No. 3,731,595) as applied to claim 9, and further in view of Yamanashi (JP 2004-9121).

19. Consider claim 10. Sugano in view of Wentworth teaches coupling members, but does not teach a guiding groove portion of the guiding tracks with a C-shaped cross section, but this is a matter of design choice. Yamanashi teaches guiding tracks (21) with a guiding groove portion with a C-shaped cross section (see fig. 4). Yamanashi teaches moving blocks (31) slidably installed on the guiding groove portion. It would have been obvious to a person having ordinary skill in the art to modify the guiding tracks of Sugano in view of Wentworth with Yamanashi's C-shaped cross section in order to remove and replace one of the moving blocks in the center without removing one of the moving blocks on the end. It would have been obvious to a person having ordinary skill in the art to modify the coupling members of Sugano in view of Wentworth to be slidably installed in Yamanashi's guiding groove portion in order to minimize the size of the apparatus.

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20. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al. (Pub. No. 2003/0053893), hereafter referred to as Matsunaga in view of Sugano (JP 01-169103).

21. Consider claim 12. Matsunaga teaches a movable stage device with a linear guide (84) between sidewalls (top side and bottom side of 65) in a chamber (64), a movable frame (58) movable along the linear guide, a pair of bellows (91, 92) surrounding the linear guide and extending from the movable frame to the sidewalls and forming an auxiliary space (inside bellows 91 and 92, see figs. 3-4), a driving member (motor 86, screw shaft 84, and ball screw in stage 85; see paragraph 0029) for moving the movable frame, and guiding tracks (83 and 84, see fig. 1) installed in the bellows and extending along the axial direction of the bellows.

Matsunaga does not teach moving members and intermediate supporting members. Sugano teaches moving members (29) positioned on guiding tracks (22, 23) and intermediate supporting members (29a) for connecting the moving members to the bellows (26, 27). It would have been obvious to a person having ordinary skill in the art to modify Matsunaga's apparatus with Sugano's moving members and intermediate supporting members in order to stabilize the extension-contraction movement of the bellows (see Sugano's abstract).

22. Consider claim 13. Matsunaga teaches that the chamber (antechamber 64) is a vacuum (see paragraph 0038, lines 12-13) and the auxiliary space (inside bellows 91, 92) is an atmosphere (see paragraph 0039, lines 5-9).

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23. Consider claim 14. Matsunaga teaches the driving member (motor 86, screw shaft 84, and ball screw in stage 85; see paragraph 0029) is at a predetermined location in the pair of bellows (see figs. 3-4).

24. Consider claim 15. Matsunaga teaches that the movable frame (stage 85) has a horizontally protruding arm 87, but does not teach that the arm 87 is capable of bending and stretching. Matsunaga teaches a transfer arm unit (wafer transfer device 10) that is capable of bending and stretching. It would have been obvious to a person having ordinary skill in the art to modify Matsunaga's movable frame with Matsunaga's wafer transfer device in order to increase the mobility and functionality of the movable frame.

25. Consider claim 16. Matsunaga teaches a transfer chamber housing (65) connected to a processing apparatus (process room 74) for performing a semiconductor processing on the object (wafer W).

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following is a list of pertinent prior art:

- Jinnouchi (Patent No. 4,183,289) teaches a bellows with coupling members.
- Reed (Patent No. 4,170,166) teaches a bellows with roller and guide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Snelting whose telephone number is 571-270-7015. The examiner can normally be reached on Monday to Friday 8:00 to 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Saul J. Rodriguez/
SPE, Art Unit 3652

/Jonathan Snelting/
Examiner, Art Unit 3652